

CLAIMS

We claim:

1. An elevator system, comprising:
  - 5 a cab;
  - a counterweight;
  - a load bearing member extending between the cab and the counterweight so that the cab and counterweight move simultaneously;
  - 10 a tension member extending between the cab and the counterweight, the tension member providing a desired tension on the load bearing member; and
  - 15 a damper supported for movement with one of the cab or the counterweight, one end of the tension member being associated with the damper such that the damper reduces motion of the cab or the counterweight when the other of the cab or the counterweight has stopped.
2. The system of claim 1, including a stationary base supported beneath a lowest available position of the cab and a plurality of sheaves rotatably supported on the base, the tension member moving along the sheaves as the cab and counterweight move.
- 20 3. The system of claim 1, wherein the sheaves comprise plastic.
- 25 4. The system of claim 3, wherein the tension member has an outside dimension and the sheaves have a diameter that is approximately thirty times greater than the tension member outside dimension.
5. The system of claim 3, wherein the sheaves have a diameter in the range from about 290 mm to about 330 mm.
- 30 6. The system of claim 1, wherein the tension member comprises a plurality of belts each having a thickness of approximately 10 mm and a width of approximately 30 mm.

7. The system of claim 1, wherein the damper comprises at least one of an air spring, a pneumatic damper, a hydraulic damper or a mechanical spring.

5 8. The system of claim 7, including a first member acting against one side of the damper and a second member associated with an opposite side of the damper, the first member remaining stationary relative to the cab or counterweight with which the damper moves, the second member being moveable relative to the first member, the damper resisting movement of the second member toward the first member.

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9. The system of claim 1, wherein the one end of the tension member is secured to at least one termination that is secured near one end of each of a plurality of thimble rods, an opposite end of the thimble rods being positioned on an opposite side of the second member from the damper and including a spring associated with each opposite end of each thimble rod to urge the opposite ends away from the second member.

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10. An elevator system, comprising:

a cab;

a counterweight;

5 a load bearing member extending between the cab and the counterweight so that the cab and counterweight move simultaneously;

a tension member extending between the cab and the counterweight, the tension member facilitating maintaining a desired tension on the load bearing member; and

10 a stationary base beneath a lowest available position of the cab and a plurality of sheaves rotatably supported on the base, the sheaves having axes that remain stationary, the tension member moving along the sheaves as the cab and counterweight move.

15 11. The system of claim 10, including a damper supported for movement with one of the cab or the counterweight, one end of the tension member being associated with the damper such that the damper reduces motion of the cab or the counterweight when the other of the cab or the counterweight has stopped.

20 12. The system of claim 11, wherein the damper comprises at least one of an air spring, a pneumatic damper, a hydraulic damper or a mechanical spring.

25 13. The system of claim 11, including a first member acting against one side of the damper and a second member associated with an opposite side of the damper, the first member remaining stationary relative to the cab or counterweight with which the damper moves, the second member being moveable relative to the first member, the damper resisting movement of the second member toward the first member.

14. The system of claim 13, wherein the one end of the tension member is secured to at least one termination that is secured near one end of each of a plurality of thimble rods, an opposite end of the thimble rods being positioned on an opposite side 5 of the second member from the damper and including a spring associated with each opposite end of each thimble rod to urge the opposite ends away from the second member.
15. The system of claim 11, wherein the tension member has an outside dimension 10 and the sheaves have a diameter that is approximately thirty times greater than the tension member outside dimension.
16. The system of claim 15, wherein the sheaves have a diameter in the range from about 290 mm to about 330 mm.
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17. The system of claim 10, wherein the tension member comprises a plurality of belts each having a thickness of approximately 10 mm and a width of approximately 30 mm.

18. An assembly for providing tension on a load bearing member in an elevator system, comprising:

5       an elongate tension member having a first end that is adapted to be secured to one of a cab or a counterweight;

      a damper that is adapted to be supported for movement with the other of the cab or the counterweight, a second end of the tension member being associated with the damper such that the damper absorbs a load on the tension member under selected conditions; and

10      a base module that is adapted to be secured in a pit and that includes at least one sheave having an axis of rotation that remains stationary relative to the pit, the tension member at least partially wrapping around the sheave.

19. The assembly of claim 18, wherein the damper includes at least one of an air spring, a hydraulic actuator, a pneumatic actuator or a mechanical spring.